REMARKS

Claims 1, 3-8, 11, 13-14, 16-18 are currently pending in the present application, with claims 1 and 7-8 being written in independent form. Claims 2, 9-10, 12, 15, and 19-20 were previously cancelled without prejudice or disclaimer. Claims 7-8 remain withdrawn from consideration. Thus, no new matter has been introduced into the claims.

Claim Rejections under 35 U.S.C. § 103 (Bokova + Irle)

Claims 1, 3-6, 11, 13-14, and 16-18 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over *"Laser-Induced Effects in Raman Spectra of Single-Wall Carbon Nanotubes,"* Quantum Electronics, Vol. 33, No. 7, pp. 645-650, 2003 (Bokova) in view of *"Theoretical Study of Structure and Raman Spectra for Models of Carbon Nanotubes in Their Pristine and Oxidized Forms,"* J. Phys. Chem. A, Vol. 106, pp. 11973-11980, 2002 (Irle). Applicants respectfully traverse this rejection for the reasons below.

Applicants maintain that the position articulated in the response filed August 2, 2010. In addition, Applicants would like to provide the following comments.

In the current Final Office Action, the Examiner acknowledges that the cited art fails to disclose or suggest the "irradiating" so as to "selectively oxidize and remove" step of Applicant's claim 1 but nevertheless attempts to assert that "[i]n method claims, the *intended result* is not given patentable weight when it simply expresses the intended result of a process step positively recited (MPEP § 2111.04)."[1] This assertion is a mischaracterization of MPEP 2111.04 and the case law cited therein.

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[1] *Final Office Action (09/08/2010)*: p. 3, ln. 5-20.

MPEP 2111.04 merely instructs that, depending on the specific facts of a case, "adapted" to/for clauses, "wherein" clauses, and "*whereby*" clauses "*may* raise a question as to the limiting effect of the language in a claim." In particular, MPEP 2111.04 notes the decision in *Minton v. National Association of Securities Dealers, Inc.*, 336 F.3d 1373, 67 USPQ2d 1614 (Fed. Cir. 2003), wherein the court held that "[a] *whereby clause* in a method claim is not given weight when it simply expresses the intended result of a process step positively recited."

Thus, contrary to the Examiner's assertion in the current Final Office Action[2], it was the "whereby clause" in the claim litigated in *Minton* which was not given patentable weight.[3] A review of Applicants' claim 1 clearly shows that a "whereby" clause is not even recited in connection with the "irradiating" so as to "selectively oxidize and remove" step. Furthermore, the pertinent claim language in *Minton* (that was not given patentable weight) recited that an executing step "*whereby* the security is *traded efficiently*."[4] Specifically, the Federal Circuit in *Minton* agreed with the district court that the "traded efficiently" phrase in the "whereby" clause of the "executing" step should not be given patentable weight, because "efficiently" is merely a "laudatory [term] characterizing the result of the executing step."[5] The claim language at issue in *Minton* has been reproduced below for convenience of reference.

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2 *Final Office Action (09/08/2010)*: p. 3, ln. 18-20.

3 *Minton v. National Association of Securities Dealers, Inc.*, 336 F.3d 1373, 1381, 67 USPQ2d 1614, 1620 (Fed. Cir. 2003).

4 *Id.*

Claim 1 of US 6,014,643

(patent-in-suit in *Minton v. National Association of Securities Dealers, Inc.*)

> 1. A method for trading securities between individuals, comprising:
>
> entering an offer of a first individual to trade a security on a first data processing system;
>
> transmitting the offer to additional data processing systems, including a second data processing system, over a public communication network;
>
> entering a reply of a second individual on the second data processing system, wherein the reply is in response to the offer;
>
> executing a trade of the security based on information contained in the offer for consideration specified in the reply to the offer, whereby the security is traded efficiently between the first individual and the second individual;
>
> transmitting to the second data processing system additional offers to trade in the security formed by additional individuals;
>
> ranking the offer formed by the first individual and the additional offers formed by the additional individuals according first to a price value, then secondly, according to a quantity value; and
>
> displaying the offer formed by the first individual and the additional offers by the additional individuals according to the ranking step on a graphical user interface on the second data processing system.

A review of the above "whereby" clause in the "executing" step of *Minton* clearly reveals that the holding in that case is not even controlling (*much less* relevant) with regard to Applicants' claims. For instance, unlike the situation in *Minton*, the "selectively oxidize and remove" limitation in Applicants' claim 1 is not mere "laudatory" language. Rather, the "selectively oxidize and remove" language in Applicants' claim 1 actually defines the nature of the "irradiating" step. Thus, the Examiner has erred in not giving the "irradiating . . . so as to selectively oxidize and

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5 *Id.*

remove" limitation of Applicants' claim 1. For at least this reason, the Examiner's rejection cannot be sustained.

The Examiner also asserts that "the process of the prior art is the same as that of the claim" and concludes that, as a result, such a process "can reasonably be expected to yield products which *inherently* have the same properties."[6] Applicants respectfully disagree.

The Court of Appeals for the Federal Circuit has determined that inherency may not be established by mere probabilities or possibilities. "The mere fact that a certain thing *may* result from a given set of circumstances is not sufficient."[7] Instead, the Examiner, if relying upon the theory of inherency, must provide a basis in fact and/or technical reasoning to reasonably support a determination that the allegedly inherent characteristic necessarily flows from the teachings of the prior art.[8]

The irradiating step recited in Applicants' claim 1 includes a unique feature of irradiating the **electromagnetic wave having an energy density of 10 kW/cm² for two hours**, which is a feature that is *neither* disclosed *nor* suggested by the cited art. Therefore, the irradiating step recited in Applicants' claim 1 is not the same as the method disclosed in Bokova.

Additionally, the Examiner asserts that Bokova shows the selective oxidizing of a nanotube by radiation of laser at an energy density of 10 kW/cm², relying on p. 648, left col., ln. 40-44 of Bokova. However, Fig. 6 of Bokova merely shows a measurement result of a Raman spectrum by radiating a laser having an energy density of 10 kW/cm² and does not show that the nanotube is selectively oxidized. Rather, the

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6 *Final Office Action (09/08/2010)*: p. 4, ln. 4; p. 6, ln. 6-7.

7 *In re Robertson*, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999).

nanotube is just "excited" by the laser having a power density of 10 kW/cm^2. As proof, Applicants direct the Examiner's attention to the portion of Bokova which refers to "the first spectrum **excited** at a power density of 10 kW cm^{-2} . . ."[9] In further detail, Bokova discloses that the physical changes in the carbon nanotube caused by oxidation are "**irreversible** changes" (for example, see p. 646-647, section 3.1 of Bokova), while the physical changes in the carbon nanotubes caused by *excitation* are "**reversible** changes" (for example, see p. 648, section 3.2). Stated more clearly, the nanotubes in Fig. 6 of Bokova have not been oxidized but, instead, have merely been *reversibly* changed in a resonance *excitation* state.

Because Fig. 6 in Bokova merely shows the Raman spectrum for *measuring* the physical properties of the nanotube, a person ordinarily skilled in the art would understand that irradiating light having an energy density of 10 kW/cm^2 in accordance with the teachings of Bokova would not result in a change in the physical property of the nanotube. Hence, it would not have been obvious for a person ordinarily skilled in the art to arrive at selectively oxidizing a low-dimensional quantum structure having the specific density of state resonating with a wavelength of the irradiated electromagnetic wave and removing this low-dimensional quantum structure from a mixture. Furthermore, it would not have been obvious to arrive at irradiating, for two hours, light having an energy density that does not cause a change in the physical property of the nanotube. As evidenced by Bokova, because the light in FIG. 6 is merely used for measuring a Raman spectrum, there is no credible reason for one ordinarily skilled in the art to just *arbitrarily* irradiate the light of Bokova for

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8 *See In re Robertson*, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999); and *In re Oelrich*, 666 F.2d 578, 581-82, 212 USPQ 323, 326 (CCPA 1981).

9 Bokova: p. 648, left col., ln. 41-42.

two hours, which greatly exceeds the time required for measuring a Raman spectrum (and, thus, would be a waste of energy). Irle fails to remedy the deficiencies of Bokova.

For at least the reasons above, a *prima facie* case of obviousness cannot be established with regard to claim 1. Consequently, a *prima facie* case of obviousness also cannot be established with regard to claims 3-6, 11, 13-14, and 16-18, at least by virtue of their dependency from claim 1. Accordingly, Applicants respectfully request the Examiner to reconsider and withdraw the above rejection.

CONCLUSION

In view of the above, Applicants respectfully request the allowance of all the pending claims in the present application.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Alex C. Chang, Reg. No. 52,716, at the telephone number below.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 08-0750 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. §1.17; particularly, extension of time fees.

Respectfully submitted,

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